**1. What is the root directory? What is the command to change the current working directory to the root directory?**

The root directory is the top directory that everything branches out from. To change from the current working directory to the root use the command cd / .

**2. What is the command to create an empty file with the name foo.txt?**

There are several ways to create an empty file with the name foo.txt. You can create and open a file with many different text editors. For example, one could run nano foo.txt, which would open a new file with that name in nano (assuming a file with that name does not already exist).

A way to create a file without opening it in a specific (or any) text editor would be touch. The command, in this case, would be touch foot.txt

**3. What is the command to rename the file foo.txt to bar.txt.**

The command would be mv foot.txt bar.txt.

**4. What is the command to find the location of the binary executable file for the ls utility? What is the output of running that command?**

The whereis command will get the job done here. This command, followed by the utility you are looking for the location of, will help you find the executable file for said utility. In this case, the command would be whereis ls. The output of running this will be the path to the executable. When we ran it on our end, the output looked like “ls: /usr/bin/ls”.

**5. What is the command to print the username of the current user? What is the output of running that command?**

The command whoami should accomplish this. The output will be the username of the current user. In our case, running the command on our ubuntu parallels outputted “parallels”.

**6. What are shell environment variables? What command will print out the current environment variables (note, you should not provide the output of this command)?**

The shell environment variables are variables that any program spawned from the shell can access. Generally, they store information relevant to the system. The command to view them is env.

**7. What is the command to print the name of the current shell? What is the output of running that command?**

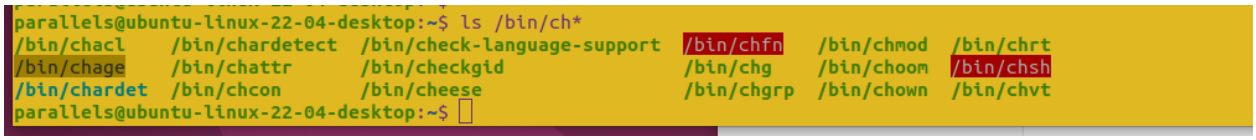
The command to print the name of the current shell is echo "$SHELL" and the output will be a directory path like "/bin/bash".

**8. What is the command to print out the kernel version of your Ubuntu OS? What is the output of running that command?**

The command to do this would be uname -r. In our case, the output of this command was “5.15.0-56-generic”

**9. What is the command to list all files in the /bin/ directory whose filename starts with the string ch? What is the output of running that command? Note, the command must work regardless of the current working directory.**

The command to do this would be ls /bin/ch* The output in our case is:




**10. What is the command to count the number of files in your home directory? What is the output of running that command? Note that you should include hidden files in your count but exclude any subdirectories. Also, you should use the tilde character (~) to specify the user’s home directory.**

The easiest way to do it would be with ls -a ~| wc -l. The bar ( | ) specifies commands being run in succession. ls -a lists all files including hidden; ~ specifies the home directory. Then wc -l counts the numbers of lines. The result of running the command above, in our case, was 29.

**11. What is the command to search the current directory and all subdirectories for C source code files containing the pattern int i? The command should output only the filenames for the matching files.**

The command to do this would be grep -r --include='*.c' 'int i' . | awk -F: '{print $1}' | sort -u. The output for us, when run from our Project1 directory (directory we put source code in) the output was “./wcat.c”. It should be noted we just added ‘int i’ as a comment in this file to confirm the command worked.